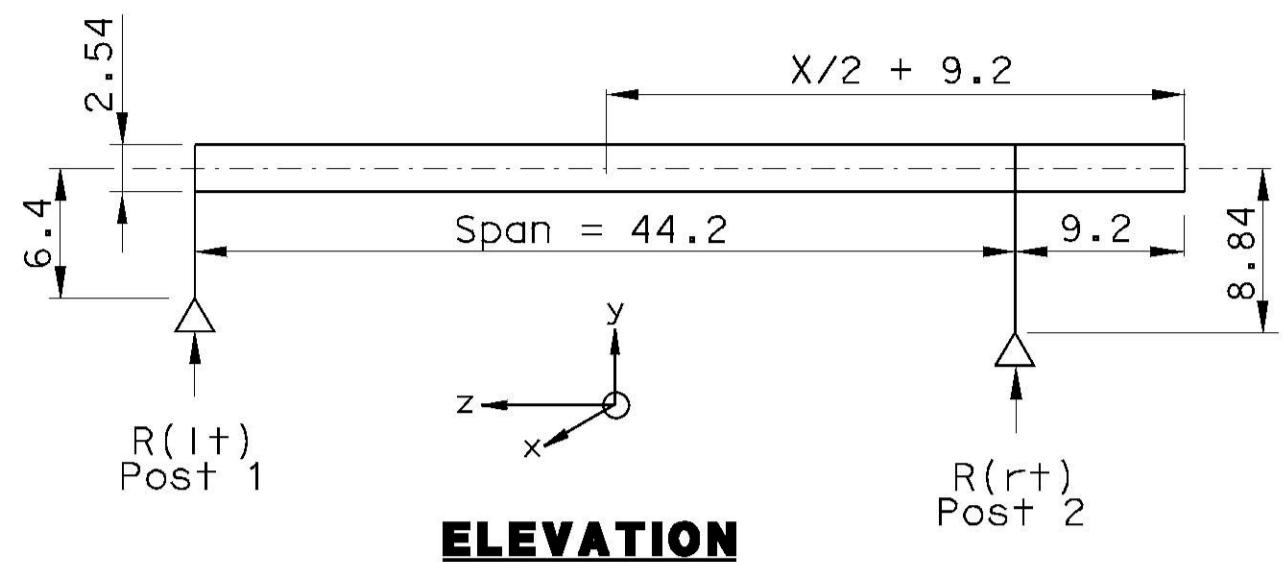


**EXAMPLE # 1:**  
To determine post type: 100% panel coverage dimensions meter (U.O.N.)



The following method is for sizing of columns only. (Verified by GT-strudl computer runs)  
Use the right side to size the post, then check the left side

$$\begin{aligned}
 \text{Panel depth} &= 2.54 \text{ m} \\
 \text{Height from base plate to center of truss} &= 8.84 \text{ m} \\
 \text{Span} &= 44.2 \text{ m} \\
 \text{Cantilever} &= 9.2 \text{ m} \\
 \text{Wind pressure} &= 1930 \text{ Pa} \\
 \text{Force} = \text{area} \times \text{pressure} &= (X/2 + 9.2) \times \text{panel depth} \times \text{pressure} \\
 &= (44.2/2 + 9.2) \times 2.54 \times 1930 \\
 &= 153438 \text{ N} \\
 \text{Actual } M = M_x + M_z &= \text{Wind load moment on base} \\
 &= \text{height} \times \text{area of sign} \times \text{wind pressure}(1930 \text{ Pa}) \times 1.05
 \end{aligned}$$

(5% increase in the moment will take care of the 20% lateral wind forces,  
AASHTO spec. computer runs verify by GT-strudl)

$M = \text{force} \times \text{height} = 1533438 \text{ N} \times 8.84 \text{ m} \times 1.05 = 1424211 \text{ N-m}$   
Read from post type selection chart, left side corresponding to moment = 1424211 N-m  
Read column VI-S, which correspond to the moment VI-S, NPS pipe 24 x 24.6 tk, split 254.  
Any moment bigger than 1705845 N-m, requires special column design.  
Use same column size for left-hand side, the above example is using 100% panel coverage

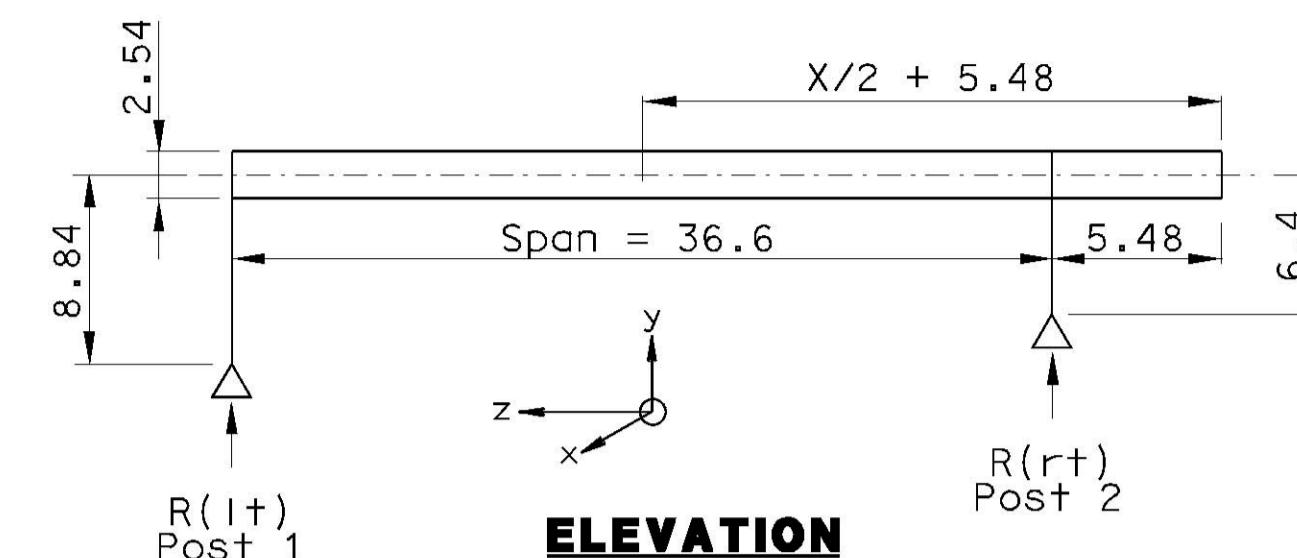
**EXAMINE LEFT HAND SIDE COLUMN**

$$\begin{aligned}
 \text{Panel depth} &= 2.54 \text{ m} \\
 \text{Height from base plate to center of truss} &= 6.4 \text{ m} \\
 \text{Span} &= 44.2 \text{ m} \\
 \text{Cantilever} &= 0 \text{ m} \\
 \text{Wind pressure} &= 1930 \text{ Pa} \\
 \text{Force} = \text{area} \times \text{pressure} &= (X/2 + 0) \times \text{panel depth} \times \text{pressure} \\
 &= (44.2/2 + 0) \times 2.54 \times 1930 \\
 &= 108338 \text{ N} \\
 \text{Actual } M = M_x + M_z &= \text{Wind load moment on base} \\
 &= \text{height} \times \text{area of sign} \times \text{wind pressure}(1930 \text{ Pa}) \times 1.05
 \end{aligned}$$

(5% increase in the moment will take care of the 20% lateral wind forces,  
AASHTO spec. computer runs verify by GT-strudl)

$M = \text{force} \times \text{height} = 108338 \text{ N} \times 6.4 \times 1.05 = 728031 \text{ N-m}$   
Read from post type selection chart, left side corresponding to moment = 728031 N-m  
Read column V-S, which correspond to the moment V-S, NPS pipe 24 x 12.7 tk, split 203.  
HOWEVER, for both side USE COLUMN SIZE VI-S, NPS pipe 24 x 24.6 tk, split 254,  
the larger column section of the left & right side shall govern

**EXAMPLE # 2:**  
To determine post type: 100% panel coverage dimensions meter (U.O.N.)



The following method is for sizing of columns only. (Verified by GT-strudl computer runs)  
Use the right side to size the post, then check the left side

$$\begin{aligned}
 \text{Panel depth} &= 2.54 \text{ m} \\
 \text{Height from base plate to center of truss} &= 6.4 \text{ m} \\
 \text{Span} &= 36.6 \text{ m} \\
 \text{Cantilever} &= 5.48 \text{ m} \\
 \text{Wind pressure} &= 1930 \text{ Pa} \\
 \text{Force} = \text{area} \times \text{pressure} &= (X/2 + 5.48) \times \text{panel depth} \times \text{pressure} \\
 &= (36.6/2 + 5.48) \times 2.54 \times 1930 \\
 &= 116574 \text{ N} \\
 \text{Actual } M = M_x + M_z &= \text{Wind load moment on base} \\
 &= \text{height} \times \text{area of sign} \times \text{wind pressure}(1930 \text{ Pa}) \times 1.05
 \end{aligned}$$

(5% increase in the moment will take care of the 20% lateral wind forces,  
AASHTO spec. computer runs verify by GT-strudl)

$M = \text{force} \times \text{height} = 116574 \times 6.4 \times 1.05 = 783379 \text{ N-m}$   
Read from post type selection chart, left side corresponding to moment = 783379 N-m  
Read column V-S, which correspond to the moment V-S, NPS pipe 24 x 12.7 tk, split 203.  
Any moment bigger than 1705845 N-m, requires special column design.  
Use same column size for left-hand side, the above example is using 100% panel coverage.

**EXAMINE LEFT HAND SIDE COLUMN**

$$\begin{aligned}
 \text{Panel depth} &= 2.54 \text{ m} \\
 \text{Height from base plate to center of truss} &= 8.84 \text{ m} \\
 \text{Span} &= 36.6 \text{ m} \\
 \text{Cantilever} &= 0 \text{ m} \\
 \text{Wind pressure} &= 1930 \text{ Pa} \\
 \text{Force} = \text{area} \times \text{pressure} &= (X/2 + 0) \times \text{panel depth} \times \text{pressure} \\
 &= (36.6/2 + 0) \times 2.54 \times 1930 \\
 &= 89710 \text{ N} \\
 \text{Actual } M = M_x + M_z &= \text{Wind load moment on base} \\
 &= \text{height} \times \text{area of sign} \times \text{wind pressure}(1930 \text{ Pa}) \times 1.05
 \end{aligned}$$

(5% increase in the moment will take care of the 20% lateral wind forces,  
AASHTO spec. computer runs verify by GT-strudl)

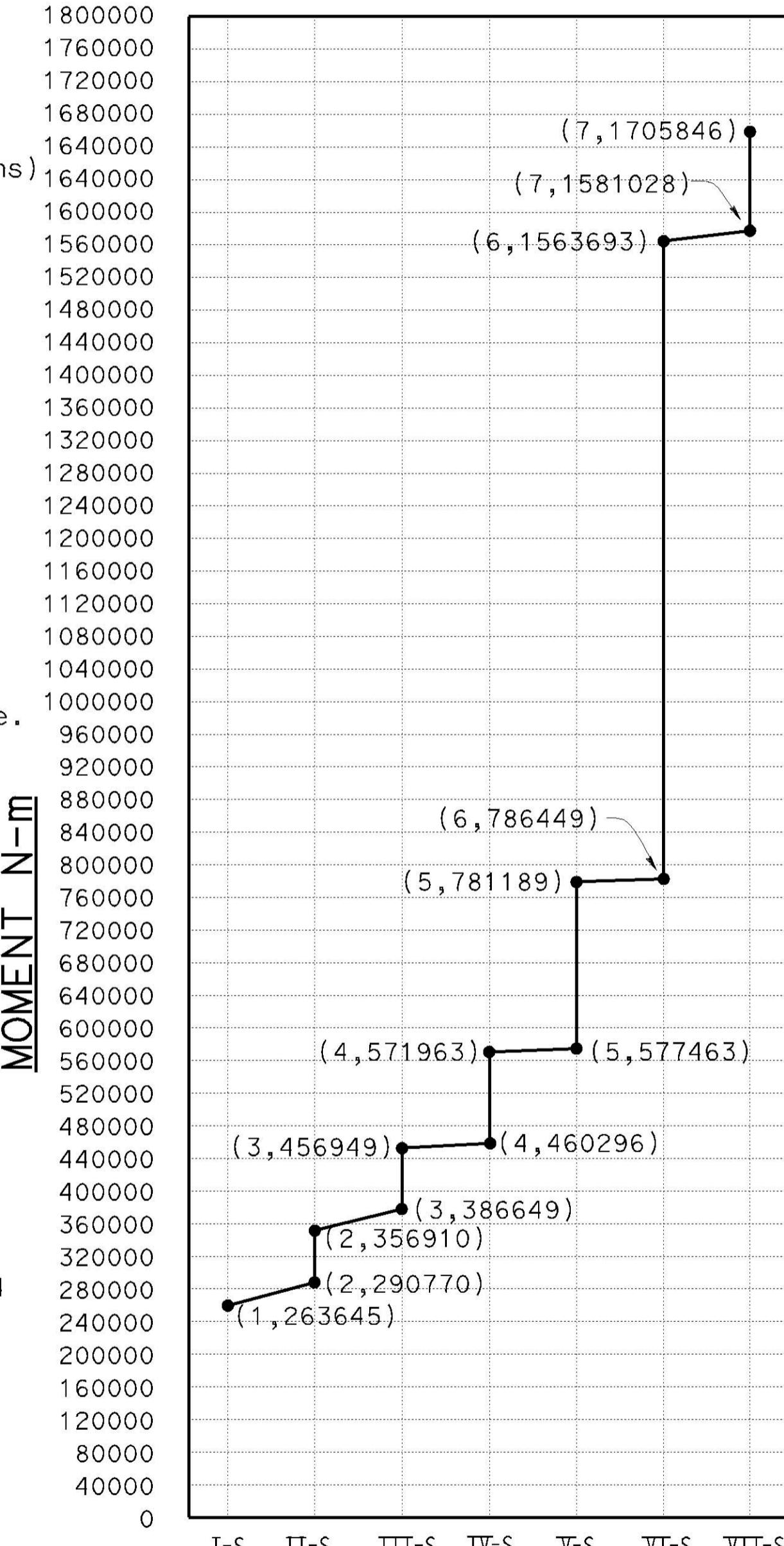
$M = \text{force} \times \text{height} = 89710 \times 8.84 \times 1.05 = 832688 \text{ N-m}$   
Read from post type selection chart, left side corresponding to moment = 832688 N-m  
Read column VI-S, which correspond to the moment VI-S, NPS pipe 24 x 24.6 tk, split 254.  
HOWEVER, for both side USE COLUMN SIZE VI-S, NPS pipe 24 x 24.6 tk, split 254,  
the larger column section of the left & right side shall govern

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Caltrans Metric

REGISTERED ENGINEER - CIVIL  
No. Exp. CIVIL  
PLANS APPROVAL DATE  
The State of California or its officers or agents  
shall not be responsible for the accuracy or  
completeness of electronic copies of this plan sheet.

**2 POST TRUSS SIGN,  
POSTS SELECTION**



**POST TYPE NUMBER**

Post Type	Specification of pipe post	
		Split (mm)
I-S	Pipe NPS 14 x 12.7 TK	127
II-S	Pipe NPS 16 x 12.7 TK	152
III-S	Pipe NPS 18 x 12.7 TK	178
IV-S	Pipe NPS 20 x 12.7 TK	203
V-S	Pipe NPS 24 x 12.7 TK	203
VI-S	Pipe NPS 24 x 24.6 TK	254
VII-S	Pipe NPS 24 x 24.6 TK	254

- Legend:  
TK = Thickness  
X = span
- Dimensions are in meter

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**THIS SHEET NOT A PART  
OF CONTRACT PLANS**

**OVERHEAD SIGNS-TRUSS  
TWO POST TYPE  
POST TYPES I-S THROUGH VII-S**

**POST SELECTION CHART**